MEMORANDUM

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Thru: Wayne Amato

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TO The Record **From** James Pittman - Geology & Engineering Section **Date** 4/2/79

Subject New Jersey Fireworks Disposal Site - Cecil County

On March 27, 1979, David Healy and the writer visited the above-referenced site in Cecil County. Based on what knowledge is available relative to the site specifics, the following information is offered.

Surface Topography: The disposal site is located in close proximity (15-20 feet) to Mill Creek which evenuually drains into Elk Creek southwest of Elkton City. The elevation is approximately 60-80 feet above MSL. The soils belong to the loamy and clayey land association consisting chiefly of multi-colored clay deposits.

Subsurface Geology: Local deposits consists of the Patapsco and Patuxent formations which often are combined as the Potomac Group. The Patapsco consists of unconsolidated sand, sandy clay, clay, silt, and small amounts of gravel. The clay is generally tan, buff, white and characteristically pink, red and mottled pink and white. Abandoned clay pits along the outcrop of the formation show that the clay beds were once commercially important. The sand is for the most part fine-grained and the gravels are found at places scattered through sandy clay but is rarely in continuous beds. Most wells drilled in the general area of the disposal site in Cecil County, show that sand and gravel lenses capable of holding substantial quantities of water, only account for about 15-20% of the water bearing information. The estimated thickness of the Patapsco formation in the Northern part of Elk Neck is 200 feet.

As discussed earlier, areally extensive beds of well sorted sand and gravel are lacking. Where gravel is found it is generally mixed with clay. Thus, yielding great differences in permeability. Often, wells located near one another may have to go to different depths to find a lens sufficiently permeable to yeild water.

Recommendation:

1) Since the vertical extent of the water-filled pit is not known at this time, the approximate depth should be determined either from existing mining records or physical on-site measurements.

2) The pit and the surface waters surrounding the disposal site should be sampled regularly in order to detect any degradation in water quality.

3) The implementation of a groundwater monitoring program at the above-referenced site, at the present time, would be premature. The writer would first have to determine the depth to the shallow water table (estimated to be less than 10 feet below the land surface) by means of hand augering, power augering, or backhoe digging. By assuming that the pit is being recharged by both surface runoff and the rather slow seepage of shallow groundwater, discharge of any contaminants presently in the pit would be explained by an overflow component and a horizontal-upward component. If this particular pit was located in an area of groundwater recharge, the vertical component would then have to be considered (reflecting a totally different situation) and a groundwater monitoring system would be a necessity.

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It is, however, recommended that no additional wastes be disposed of at the site and that the surface water quality analysis be reviewed carefully over the next full year, in order to account for seasonal variations in stream flow.

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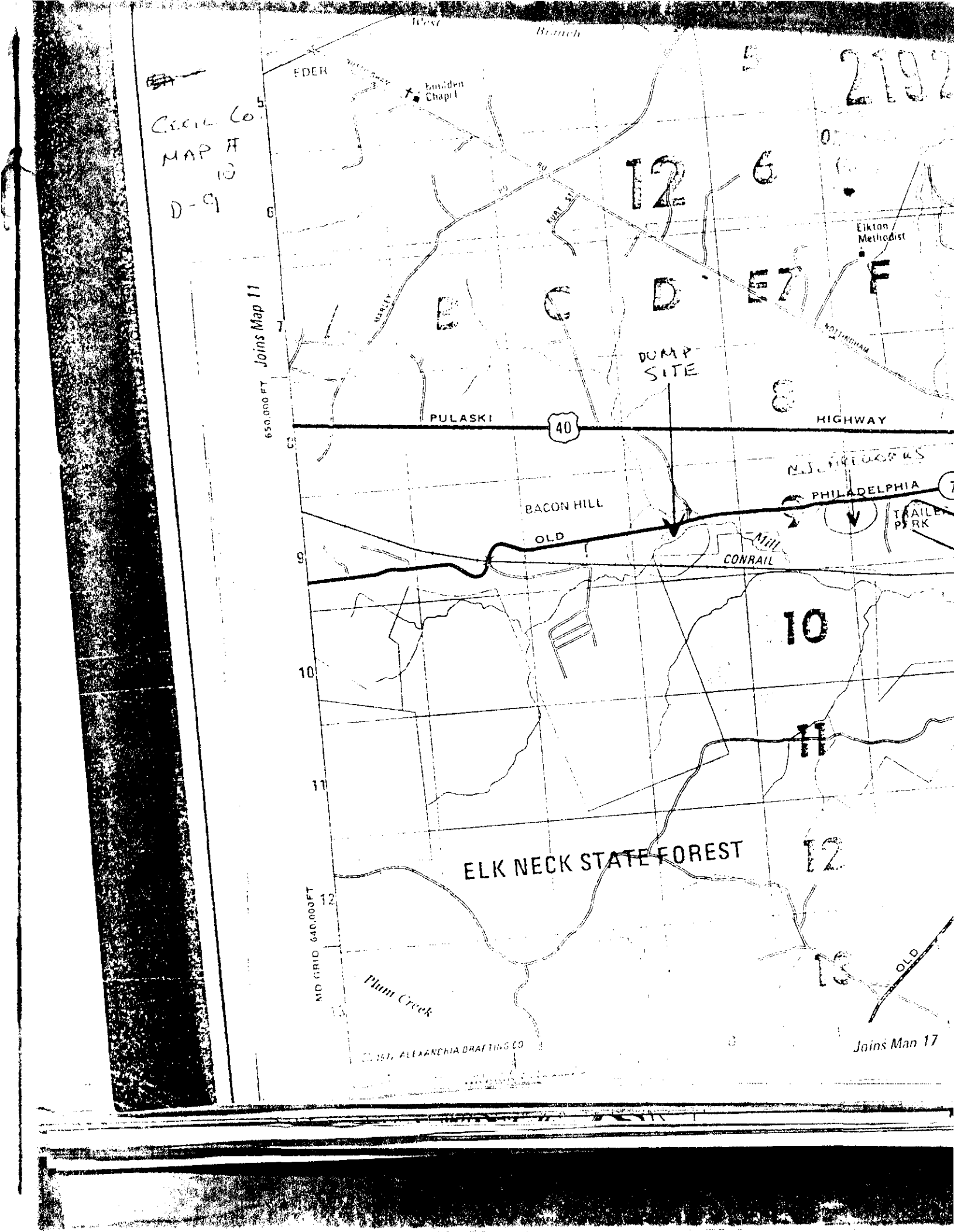
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West Branch
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DUMP SITE
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